DOCUMENT RESUME

ED 296 514 EC 210 282

AUTHOR Candler, Ann C.; Keefe, Charlotte Hendrick
TITLE Barking Books? The Microcomputer in Special Education Language Arts Programs of the Future.
PUB DATE Nov 87
NOTE 16p.; Paper presented at the Council for Exceptional Children's Topical Conference on the Future of Special Education (Orlando, FL, November 15-17, 1987).
PUB TYPE Guides - Non-Classroom Use (055) -- Reference Materials - Directories/Catalogs (132) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Artificial Speech; Computer Graphics; Computer Uses in Education; *Disabilities; Elementary Secondary Education; Instructional Effectiveness; Integrated Curriculum; *Language Arts; *Microcomputers; Reinforcement; Skill Development; *Special Education; Speech Synthesizers; *Teaching Methods; *Word Processing

ABSTRACT

The use of microcomputers in language arts instruction with exceptional students can be an effective tool for both teaching and reinforcing skills, but is not typically employed as an integral part of the overall language arts curriculum. Research studies substantiate the positive impact on student performance when microcomputers are effectively integrated into the instructional process. An especially useful application of microcomputers in language arts is in the area of word processing. Available programs include those offering just word processing ("Magic Slate," "Miliken," "Quill," and "Writing Wizard"), those offering word processing and graphics ("Bank Street StoryBook," "Kidwriter," and "Story Maker") and those offering word processing and speech ("Talking Text Writer" and "Language Experience Recorder"). The future of microcomputers in education will be directed by three major factors: application of educational theory, expansion of the awareness of educators, and utilization of problem solving. (JDD)

**********
* Reproductions supplied by EDRS are the best that can b made *
* from the original document. *
**********

ED296514

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

# Barking Books?
# The Microcomputer in Special Education
# Language Arts Programs of the Future

Ann C. Candler, Ed.D.
Associate Professor
College of Education
Box 4560
Texas Tech University
Lubbock, Texas 79409

and

Charlotte Hendrick Keefe, Ed.D.
Assistant Professor
Department of Special Education
Southern Illinois University at Edwardsville
Box 1147
Edwardsville, Illinois 62026

EC 210282

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Ann C. Candler
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

# Barking Books?

## The Microcomputer in Special Education

## Language Arts Programs of the Future

The purpose of this paper is to discuss the use of the microcomputer in the instruction of the language arts to exceptional students. The paper will (a) consider the role of the microcomputer in the language arts content area; (b) describe available word processing programs, and (c) discuss the future of the microcomputer in this curriculum area.

### Current Role

The picture of the microcomputer in the language arts academic content area should be wonderful and the future should be optimistic. Numerous microcomputers and a broad range of software are available. With these, drill and practice, word processing, and reading capabilities are all options for both students and teachers. The cost is minimal; the hardware and software are readily accessible; and the operation of the microcomputer requires little training or prior experience. Best of all, regardless of how low or high the student's academic functioning level, the microcomputer has something to offer. Thus, the microcomputer can be a tool for both teaching and reinforcing skills. In addition, it may enable a student to perform an otherwise difficult or impossible task (i.e., reading or editing).

Despite the advantages, educators are not rapidly implementing microcomputers in the language arts instruction for handicapped students. In those situations where it is employed, it is not an integral part of the overall lanugage arts curriculum. The microcomputer is frequently an extra. It is utilized as a fill-in when there is extra time or the need for something novel. This type of usage signals the current problems and limitations related to the effective implementation (Candler & Keefe, 1987).

The microcomputer is purported to have the capacity to facilitate skills acquisition and provide clerical resources for both teachers and students. There is some data to substantiate its role in the language arts curriculum for handicapped students. Several studies suggest that microcomputer usage results in a qualitative improvement in student performance (Kerchner & Kistinger, 1984; Morocco & Neuman, 1985; and Womble, 1984). Other research data indicates that microcomputer drill and practice activities result in about the same rate of improvement as more traditional pencil and paper drill and practice activities. In studies related to the role of the microcomputer in writing, some of the data demonstrate that students are likely to spend more time on document revision when using a word processing program than pencil and paper (Kane, 1983). Unfortunately, the revisions emphasize spelling and grammar rather than content. While the

importance of appropriate grammar and punctuation is not to be overlooked, there are other considerations. If the document contains no comma faults and no content, what is gained?

Explanations for the lack of data may include the difficulty in documenting the microcomputer's effectiveness. This may be due to the lack of adequately planned and implemented research studies or the lack of sufficiently sensative research instruments to measure changes. From the other side, the lack of documentation may accurately demonstrate the microcomputer's current level of effectiveness. If it is ineffective, the next step must be to determine why. Is it due to ineffective implementation or lack of potential for effectiveness regardless of the strategy employed?

The later may emphasize some of the limitations in the manner in which the microcomputer is currently utilized. Presently, the emphasis is on computer literacy not routine computer usage. Many who routinely use word processing admit that a microcomputer is readily accessible all day (on the desktop or in very close proximity). Further, the individual's first activity of the day is to turn the microcomputer on and the last activity of the day is to turn it off. The contrast to the typical school setting is readily apparent. Noteworthy is the difference in the amount of computer accessibility. Frequently, all computers

are located in the computer room of the school or there is a single microcomputer in some designated location within the classroom. Regardless, an individual student does not have sufficient access to insure the necessary progress.

Available Word Processing Programs

One component of language arts where the microcomputer is purported to have numerous advantages for the handicapped student is word processing. Because many exceptional learners have problems with the mechanical aspects of writing (i.e., grammar, penmanship and spelling), the microcomputer is said to enhance the student's written work by assisting in the areas of difficulty.

The number available word processing programs and their capabilities has grown over the last few years. Traditional programs offering only word processing are still available. In addition, some programs offer users the opportunity to both create text and illustrate it using graphics and color. Others offer speech capabilities to assist the writer in reading the text. A few of the broad range of word processing programs are described in an effort to provide some idea of what is available for the exceptional student.

One traditional word processing program is Magic Slate (Sunburst Communications, Pleasantville, NY 10570). It is favorably received by educators because of the simplicity

of the commands it employs and the sophistication of its capabilities. It is useful with a broad range of ability levels. Further, the low level student can begin with it and continue to use it as his/her skill level develops. It comes in a 20/40/80 column version. Up to ten paragraphs can be recognized simultaneously. The 80 column version permits two files to be used at the same time. The program is available for the Apple II with 128K.

Miliken (Miliken Publishing Company, Saint Louis, MO 63132) provides another program for the Apple II with 48K. Because of the simple commands and easy format, the student with a low reading and writing level (second grade and above) can have success. Unlike many other word processing programs, this one does not have separate writing and editing modes. Text editing can be done as the user writes. Writing activities are included.

Quill (D.C. Heath, Lexinton, MA 02173) is available for the Apple II with 64K. It has received a lot of attention in the field of learning disabilities. Teachers report it is useful. Several publications rate its use with handicapped learners favorably (Olds, 1985). According to the Journal of Leanring Disabilities (1985), this program facilitates the generation and expression of ideas. It is based on a process approach to writing: prewriting, drafting, revision, and editing. Four programs facililtate writing: (1) The Planner generates a series of questions

about a topic, (2) The Library enables students to store and access manuscripts, (3) Mailbag promotes informal writing, and (4) The Wrtier's Assistant is the actual word processing program. A mix command lists sentences of a paragraph to assist analysis.

Writing Wizard (Scarborough Systems, Tarrytown, NY 10591) can be used on an Apple II with 128K, Commodore 64, IBM PC, and IBM PC, jr. It provides two text windows on the screen simultaneously. The text can be marked with color and built-in file management system is included.

A second group of programs offer the user both word processing for writing and graphics for illustrating. One such program is Bank Street StoryBook (Mindscape, Northbrook, IL 60026). This relatively new addition to the word processing program market is for upper elementary and junior high students. With this program the user can create a story and illustrate it using the combined word processing and graphics capabilities. It is available for the Apple, Commodore 64 and IBM microcomputers. A mouse or joystick is necessary to use the program.

Another word processing program offering pictures is Kidwriter (Spinnaker Software, Cambridge, MA 02142). Versions of this are produced for Apple II, Commodore 64, and IBM PC. It is useful with students in first through sixth grades. It can be employed by lower level students than the Bank Street StoryBook. When using this program,

the student is able to employ the word processing capabilities to develop a story then illustrate it by selecting items from a library of characters and objects and combining them as desired.

Like Kidwriter, Story Maker (Scholastic, New York, NY 10003) allows the user to create text and select pictures to illustrate the written information. The user is able to develop pictures by putting together the figures incorporated in the program. The graphics can be done in a variety of colors using a joystick, mouse, or Koalapad. The program is for elementary school students. It is available for the Apple with 128K and an extended 80 column card, Commodore 64, and IBM PC.

A third category of word processing programs with potential in the language arts curriculum for handicapped students offer both word processing and speech. Talking Text Writer (Scholastic, Jefferson City, MO 65102) is an example of a program with these capabilities. It can be used as a simple word processor or it can be used in conjunction with an Echo speech synthesizer. The speech synthesizer allows the work that is typed to be read to the student. The user can elect to have it read a word, a line, or a page at a time. This program offers the student with little or no reading and writing ability the opportunity to experience word processing. Students as young as 3 can use it. The program requires Apple IIe with 128K, Apple IIGS,

Apple IIc, or Franklin ACE 2000. An Echo+ and a speech synthesizer board are required for the Apple IIe. A Cricket speech synthesizer is needed for the Apple IIc.

Language Experience Recorder (Teacher Support, Greenville, FL 32605) is a word processor that can be speech enhanced by a Slotbuster speech synthesizer. Several support programs for reading can be plugged into the system: Word Works, Semantic Mapper, and Language Experience Primary Series.

## The Future

The claims, research and current status have been discussed. Obviously, the available technology allows us to say, 'the sky is the limit' regarding the microcomputer's role in the language arts program for the handicapped student. The future of microcomputers in education will be directed by three major factors: application of educational theory, expansion of the awareness of educators, and utilization of problem solving.

First, the value of the microcomputer innovation for education will be demonstrated only if it can be incorporated as an effective component of the overall instructional program. Its effectiveness will be measured in terms of student performance and achievement in the application of concepts in a variety of settings not just the acquisition of a single skill in an isolated setting. To accomplish this, there must be careful attention to the

application of technology in the learning process. The key will be the development of new learning theory or the application of currently accepted principles, in their present form or some modified version, to the use of the microcomputer in the educational setting. Perhaps failure to address learning theory is the most serious flaw in the trend to incorporate microcomputers in the educational process. To date, computer usage in education is progressing in a piecemeal fashion. The emphasis is on developing and expanding the technology capabilities without considering the theoritical perspective. Now we are at a point where the attention must shift from technology to theory. As this occurs, the role of the microcomputer will be defined. The piecemeal process will be replaced by a comprehensive view of the computer's role in both language arts instruction and the overall educational process.

Second, although there is a vast array of creative and innovative technology, the full potential of what is available is not being tapped. This is because of the lack of a theoritical base and a failure to become aware of what is available. The limitations are self-imposed. As educators, we restrict ourselves by choosing ignorance and remaining myopic. Is this because many educators question the role of the microcomputer in the instructional process. We feel that the advances are another temporary educational

innovation? Regardless of the reason, many educators are intentionally avoiding opportunities to gain computer knowledge and experience. Consequently, computer advances are wasted. Educators must become knowledgeable and involved.

Many school districts have plans to expand their current computer activities and acquire numerous items to enhance computer usage. Some of the technology soon to be a part of school programs includes notebook size computers and desks with built-in computers. Unfortunately these plans do not seem to influence our thinking. Unless we become more aware, available technological resources make little or no difference. The future is limited. Specific plans must be made to educate educators. Attention has to be given to more than just introducing teachers to hardware and software. For educational computing to be a success, educators must resolve the attitude problem and become more knowledgeable or outsiders will be recruited to assume the responsibility. If the attitude problem is not resolved, the maximal use of computers in education will be little more than a figment of some dreamer's imagination.

Even when we take a look at what the future could be with available technology, the problem of failure to problem solve restricts the horizons. Let's have expanded vision as opposed to myopia, and let's use some problem solving skills. Problem solving is a third factor dictating

the future of microcomputers in education. Thinking about computer usage without getting too bogged down with 'wouldn't it be nice ifs' is critical. Some teachers spend too much time saying:

Wouldn't it be nice if every student had a computer?

Wouldn't it be nice if we had a computer lab?

Wouldn't it be nice if I had two computers in my room?

Wouldn't it be nice if I had one computer in my room?

They loose their perspectives. It is necessary to remember everything is relative. You can alleviate some of the problems associated with the "wouldn't if be nice ifs" by rethinking your individual situation, by doing some problem solving.

For example, it may not be necessary for each student to have a personal computer or have more than one computer in a classroom (even though it would be nice if you did). Use of grouping strategies, a big monitor, peer tutoring, or flexible scheduling for individual computer use will aid in certain situations. Most teachers can creatively plan their students' computer time.

In addition to time and equipment, there are software concerns. Teachers have to be informed to be prudent consumers. They have to demand programs to strengthen or even alleviate student weaknesses. Programs have to be more effective than other teaching techniques, not just a duplication of another. Programs must fit into the

curriculum; they cannot be 'hit or miss.' The chosen programs must be based on the theory that reading and writing are developed through exposure and interaction with language and that active learning is superior to passive learning. In some instances, software programs that meet these specifications are not widely available at this time. However, this does not mean they cannot be. Definitely, the need for problem solving to identify specific needs is a must.

The problem solving must be done in light of accepted educational theory. For example, mildly handicapped students seem to lack metacognitive learning strategies. Therefore, teachers must look for programs to enhance metacognition, one's awareness about his/her learning. Programs addressing the needs of students in light of sound educational theory have to be designed to assist a student metacognitively. It should focus on environmental awareness and information relevanance. The student should be guided to select, extract, use and maintain information. Good programs must involve problem solving to help students attend to relevant information, develop memory skills and use language skills.

The future of microcomputers in language arts for the special education student is the responsibility of teachers. Ultimately, we are responsibile for program qualilty. Computers are not "bad" or "good." They are

simply tools. We must learn to use them. How we do in the learning process will determine the future of computers in language arts for the handicapped student.

References

Candler, A.C. & Keefe, C.H. (1987). The word processor as a tool for the learning disabled student. Paper presented at the International Conference of the Council for Exceptional Children. (ERIC Document Reproduction Service ED ).

Kane, J.H. (1983). Computers for composing. Paper presented at the Annual Meeting of the American Educational Research Association. (ERIC Document Reproduction Service ED 230 978).

Kerchner, L.B. & Kistinger, B.J. (1984). Language processing/word processing: Written expression, computers and learning disabled students. Learning Disabilities Quarterly, 7, 329-331.

Morocco, C.C. & Neuman, S. (1986). Word processors and the acquisition of writing strategies. Journal of Learning Disabilities, 19, 243-247.

Olds, H.F. (1985). A new generation of word processors. Classroom Computer Learning, 23-25.

Womble, G.G. (1984). Process and processor; Is there room for a machine in the English classroom? English Journal, 73, (1) 34-37.